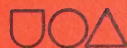


Final Visual Presentation
for the degree of
Master of Visual Arts

Industrial Design

John Douglas Darrah

1975



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THE UNIVERSITY OF ALBERTA

by

JOHN DOUGLAS DARRAH

A THESIS

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES AND RESEARCH
IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE
OF MASTER OF VISUAL ARTS

IN

INDUSTRIAL DESIGN

DEPARTMENT OF ART AND DESIGN

EDMONTON, ALBERTA
FALL, 1975


THE UNIVERSITY OF ALBERTA
FACULTY OF GRADUATE STUDIES AND RESEARCH

The undersigned certify that they have read, and
recommend to the Faculty of Graduate Studies and Research, for
acceptance, a thesis entitled:

Final Visual Presentation
submitted by John Douglas Darrah
in partial fulfilment of the requirements for the degree of
Master of Visual Arts (Industrial Design).

Date: Sep 11, 1975





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C O N T E N T S :

PRODUCT DEVELOPMENT AND DESIGN

1. Bandsaw
2. Volt-ohm meter
3. Automotive engine stand
4. Furniture
 - a. couch
 - b. dresser
 - c. storage-shelving unit
 - d. drafting desk
 - e. stools
5. Wheel chair control modification

TRANSPORTATION

1. Urban car research project

EXHIBITION DESIGN

1. Display system research
2. Total display system

HOUSING AND INTERIOR SPACE PLANNING

1. Mobile home project
2. Home improvement/expansion project
3. Office space planning project

PRODUCT DEVELOPMENT AND DESIGN

1. Bandsaw

A. PURPOSE:

Redesign of existing Rockwell Delta bandsaw for easier assembly and more functional flexibility

B. DESIGN PARAMETERS:

1. target market-small workshop
2. designed to accommodate Rockwell's existing manufacturing capabilities

C. DESIGN CONSIDERATIONS:

1. increased throat size
2. variable power range
3. flexible miter box
4. adjustable table position

D. COURSE OF ACTION:

1. loop type blade
2. cone driven power take off system
3. rack and pinion miter box
4. 270° tilt range table

2. VOLT-OHM METER

A. PURPOSE:

To develop an easily read volt-ohm meter for the home market

B. DESIGN PARAMETERS:

1. minimum physical modification to existing model - Sanwa SP-6
2. minimum dial increments required for home use

C. DESIGN CONSIDERATIONS:

1. explore optimum increment layout
2. storage of electrical leads
3. explore optimum viewing angle

D. COURSE OF ACTION:

1. optimum increment layout-resistance (ohms), A.C. (volts), D.C. (volts), D.C. (milliamps)
2. electrical leads integrated with case
3. optimum horizontal viewing angle - 10°
optimum standing angle - 35°

3. AUTOMOTIVE ENGINE STAND

A. PURPOSE:

To develop an engine rebuilding stand for commercial or home use

B. DESIGN PARAMETERS:

1. to develop a more portable and storable engine stand for commonly used engines

C. DESIGN CONSIDERATIONS:

1. explore mechanisms of collapsing
2. develop a mounting device adaptable to all engines
3. determine optimum range of work done on mounted engine

D. COURSE OF ACTION:

1. all materials are readily available in the Edmonton area
2. two bolt locking system
3. adjustable arm mounting device
4. longer mounting pins on arm mounting device

4. FURNITURE

A. PURPOSE:

To develop affordable portable furniture for student use

B. DESIGN PARAMETERS:

1. inexpensive
2. portable
3. range of useage requirements

C. DESIGN CONSIDERATIONS:

1. minimum assembly skills
2. minimum fabrication requirements
3. optimum requirements for storage
4. minimum number of components

D. COURSE OF ACTION:

1. materials are readily available or recycled
2. cost: stool-\$15.00 (3 hrs.), couch-\$60.00 (8 hrs.), dresser-\$27.00 (8 hrs.), desk-\$40.00(6 hrs.), storage system-\$15.00 (4 hrs.)
3. recycled storage stools
4. collapsible, multi-use couch
5. finish variable, portable dresser
6. collapsible study-drawing desk
7. collapsible modular storage system

5. WHEELCHAIR CONTROL MODIFICATION

A. PURPOSE:

To adapt existing wheelchair control for use by cerebral palsy patients

B. DESIGN PARAMETERS:

1. minimum cost
2. minimum alterations to existing components

C. DESIGN CONSIDERATIONS:

1. determine C-P patient's range of motion
2. determine entrance-exit capabilities of C-P patient in wheelchair

D. COURSE OF ACTION:

1. optimum control position determined
2. develop a more ergonomic knob for control
3. swing out control for easy exit-entrance of C-P patient in wheelchair

TRANSPORTATION

1. URBAN VEHICLE RESEARCH

A. PURPOSE:

To apply contemporary automotive development to the classic 1929 Ford to create a functional marriage of period aesthetics and modern technology

EXHIBITION DESIGN

1. DISPLAY SYSTEM RESEARCH

A. PURPOSE:

Explore fastening methods and components for freestanding steel tube frame display structures

B. DESIGN PARAMETERS:

1. collapsible
2. easily assembled
3. portable
4. low cost

C. DESIGN CONSIDERATIONS:

1. optimum module for display functions
2. minimum skill required to use fastening devices
3. minimum fabrication requirements
4. minimum number of different components

D. COURSE OF ACTION:

1. grid system based on 2' module; each fastening device accepts all tubing variations
2. simple torque operation required for fastening
3. drill press, lathe, tube cutter, punch
4. each system contains 3 basic components

2. TOTAL DISPLAY SYSTEM

A. PURPOSE:

To develop a multi-use display system

B. DESIGN PARAMETERS:

1. easily assembled
2. display 2d or 3d material
3. inexpensive
4. portable
5. low key structure

C. DESIGN CONSIDERATIONS:

1. optimum module for display functions
2. minimum assembly skill
3. minimum number of fabrication operations
4. minimum number of different components
5. standard stock components

D. COURSE OF ACTION:

1. frame system is based on 2' module
2. screwdriver
3. tube bending, masonite preparation, dowels, panel fasteners
4. tubing, panels, tube fasteners, clamps, panel screws, rubber feet
5. standard tubing, masonite, hose clamps, screws, rubber feet

HOUSING AND INTERIOR SPACE PLANNING

1. MOBILE HOME PROJECT

A. PURPOSE:

Functional and aesthetic alterations to existing mobile homes

B. DESIGN PARAMETERS:

I. 1. minimum assembly line modification

II.1. extensive assembly line modification

C. DESIGN CONSIDERATIONS:

I. 1. maximum interior space utilization

2. minimize confined space disadvantages

3. minimize "mobile home look"

II.1. maximum interior space utilization

2. minimize confined space disadvantages

3. "permanent home look"

D. COURSE OF ACTION:

I. 1. bolt on module-new or existing mobile home use.

2. integrated skylight

3. wood facade, projecting windows, deck

II.1. tip out modules

2. juxtaposed floor levels

3. circular windows, wood facade

2. HOME IMPROVEMENT/EXPANSION PROJECT

A. PURPOSE:

To provide a useable functional living space with home improvement and expansion

B. DESIGN PARAMETERS:

1. maximum use of existing house
2. inexpensive/"more with less" philosophy
3. design consideration-family of 4-5

C. DESIGN CONSIDERATIONS:

1. maximum use of space
2. on site fabrication
3. minimum skill, labour, tool requirements
4. trade labour to be carried out by owner

D. COURSE OF ACTION:

1. 600 sq.ft. addition-to accommodate family
2. use of available materials
3. integration of old and new exterior by use of cedar siding, front and rear additions and low key complementary paint
4. old and new interior integrated by common stairwell area and two bathrooms

3. OFFICE SPACE PLANNING PROJECT

A. PURPOSE:

To provide a useful functional design office space with planning and improvement

B. DESIGN PARAMETERS:

1. maximum use of existing building
2. inexpensive/"more with less" philosophy
3. design consideration-staff of 6

C. DESIGN CONSIDERATIONS:

1. on site fabrication
2. minimum skill, labour, tool requirements
3. modifications limited by basic building structure
4. optimum space requirements
5. attain design office requirements

D. COURSE OF ACTION:

1. use of available materials
2. retention of "era look" of office (circa 1912)
3. skylights, brickwalls, woodwork-retained
4. new entrance-exit, existing doorways sealed off
5. pin boards, material storage area, library, projection room, conference room, reception area, work space

